

AQUIFER STORAGE AND RECOVERY

The New Mexico Story

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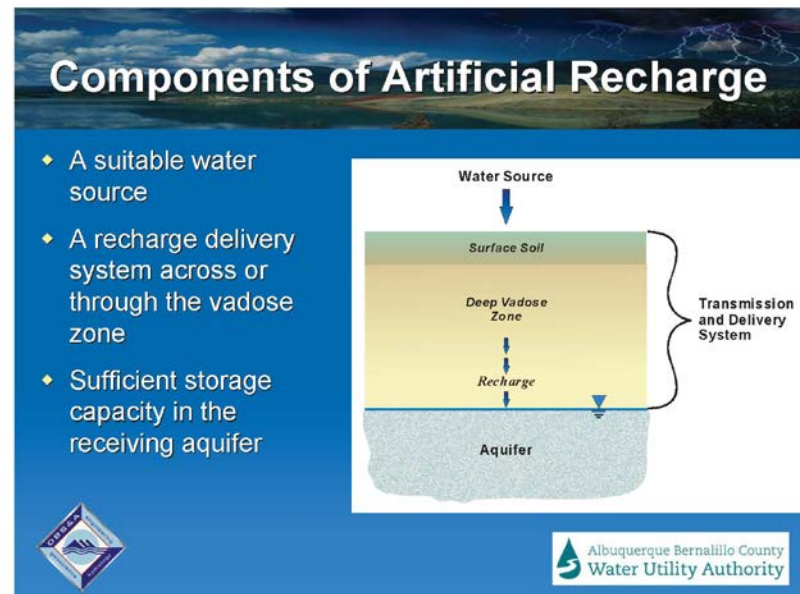


OUTLINE

- What is Aquifer Storage and Recovery (ASR)?
- How does ASR work?
- History of New Mexico ASR
- How can New Mexicans Benefit from ASR?
- What are the challenges for New Mexico?

WHAT IS ASR?

- AR - Artificial Recharge
- ASR – Aquifer Storage and Recovery
- MAR – Managed Aquifer Recharge
- USR – Underground Storage and Recovery



SOURCE OF WATER

- Surface Water
- Reclaimed Water
- Groundwater

SURFACE WATER



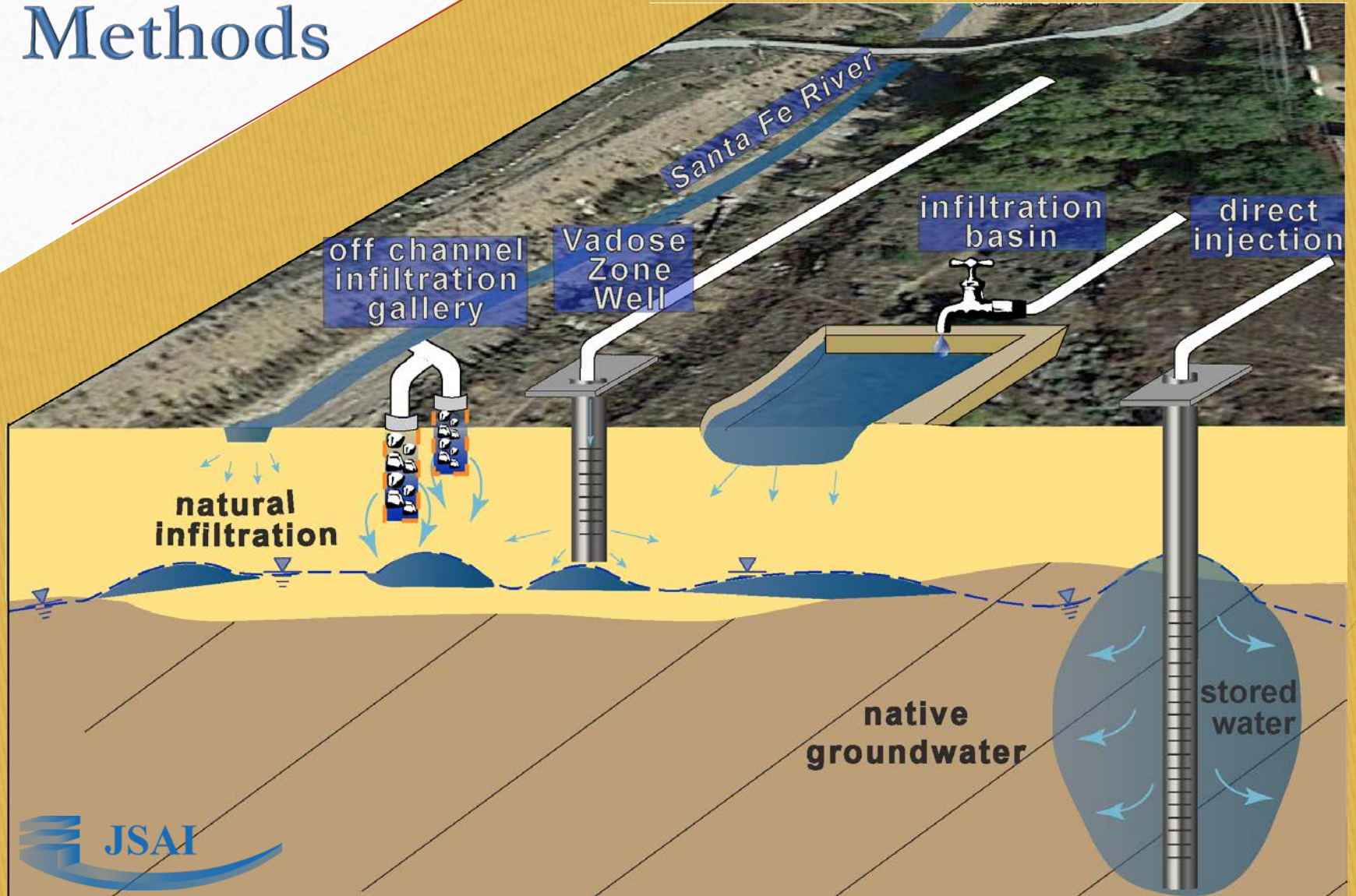
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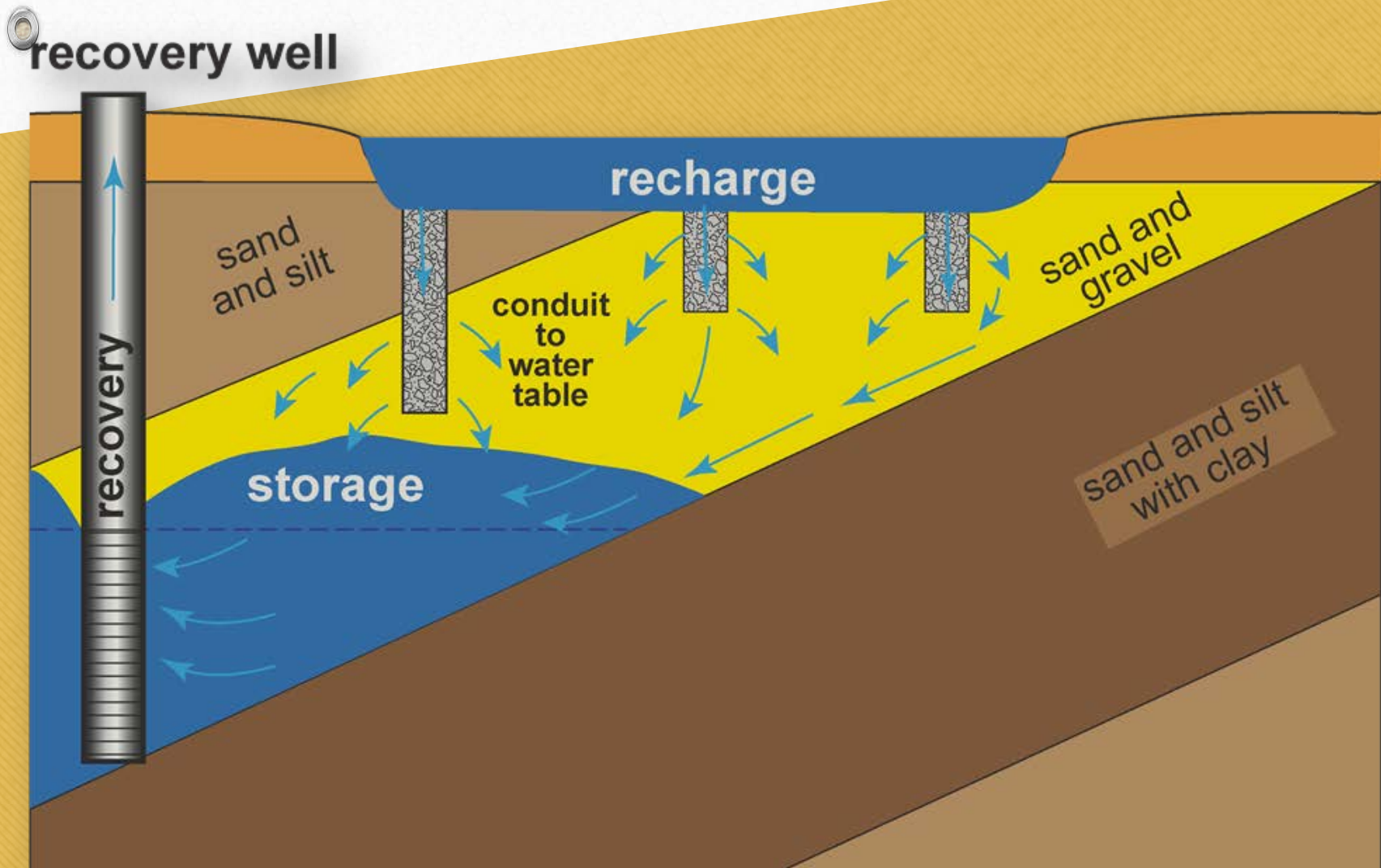
RECLAIMED WATER



Paseo Real WRF – City of Santa Fe

ASR Recharge Methods



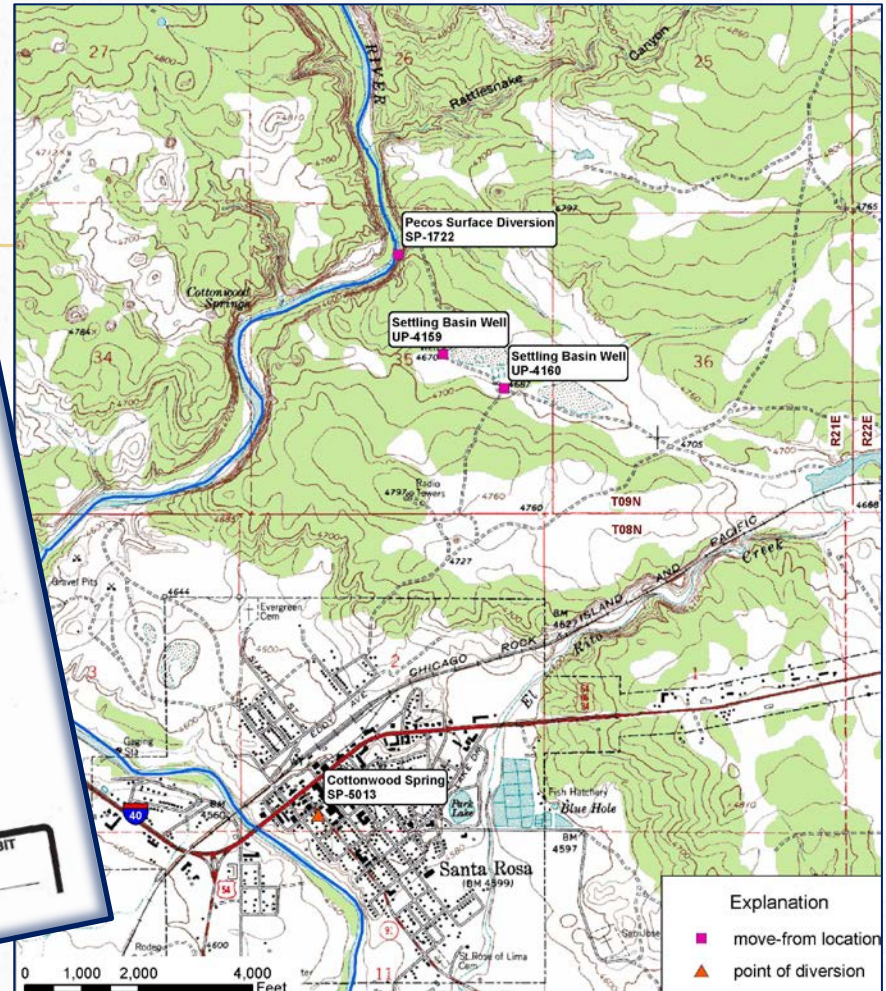
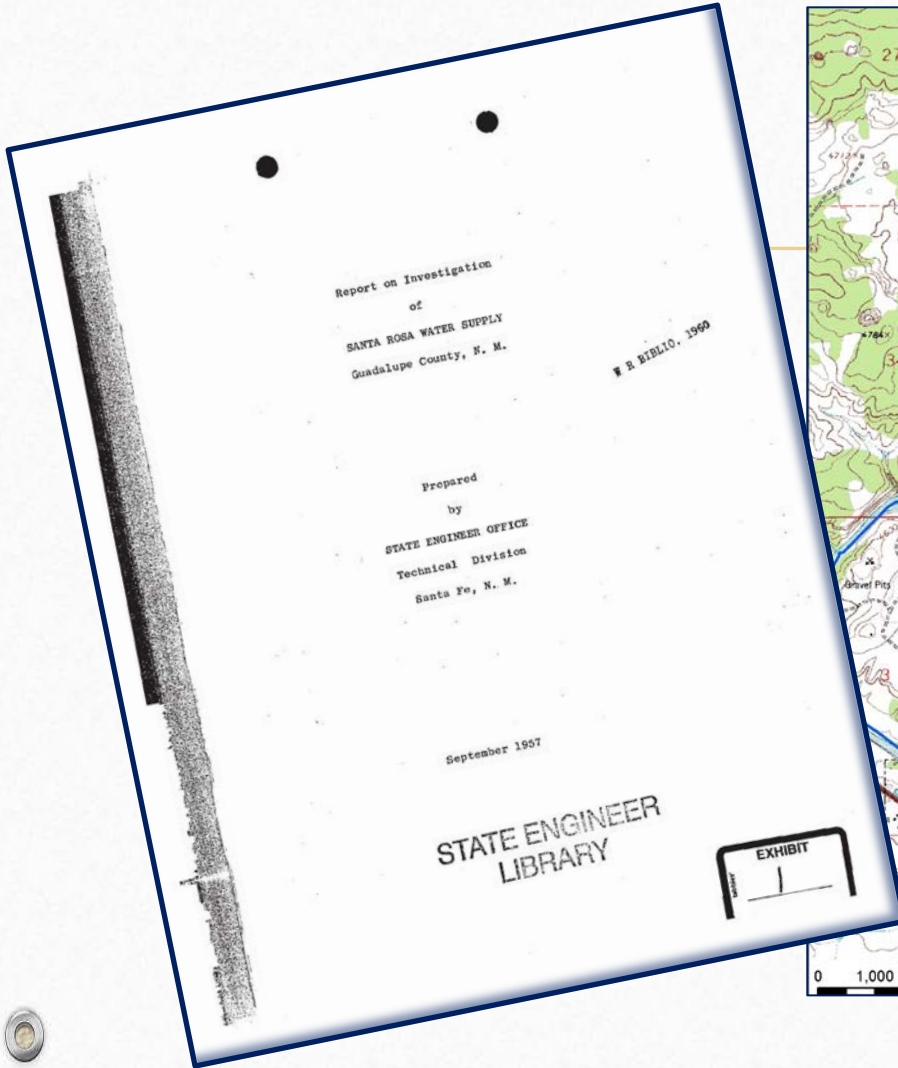


Infiltration Basin
modified with gravel filled boreholes

HISTORY OF NEW MEXICO ASR

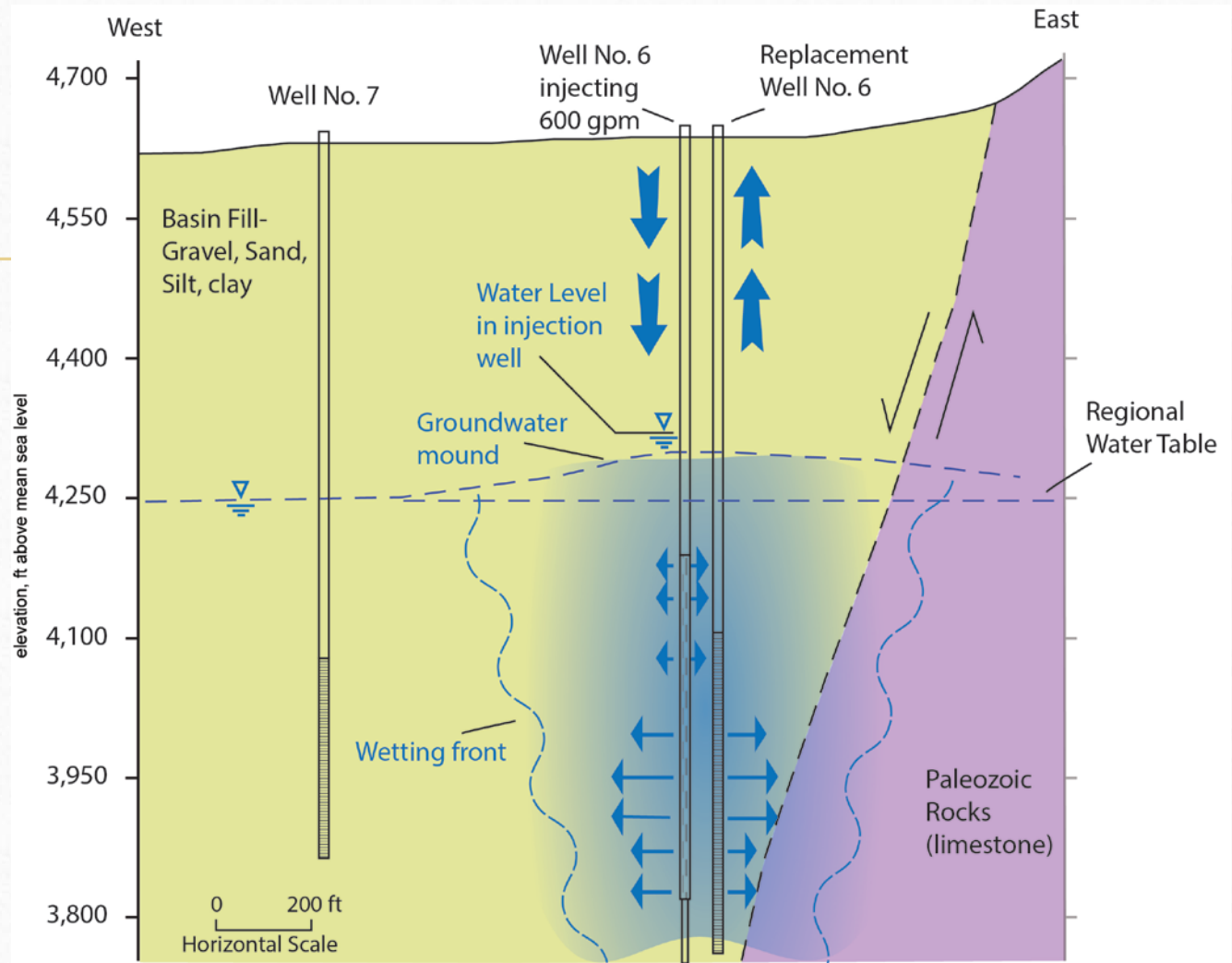
1956 to current

1956 - City of Santa Rosa



1997 – City of Alamogordo

**Three month
pilot test**
Source: treated
spring water
Method: injection
and recovery wells



1999 Groundwater Storage and Recovery Act §72-5A, NMSA 1978

- ✓ Reduce costs .
- ✓ Improve water and environmental quality
- ✓ Reduce groundwater level declines
- ✓ Promote conservation of water
- ✓ Serve the public welfare of the state
- ✓ Lead to more effective use of the state's water resources



REGULATION NMAC 19.25.8

**TITLE 19
CHAPTER 25
PART 8**

**NATURAL RESOURCES AND WILDLIFE
ADMINISTRATION AND USE OF WATER – GENERAL PROVISIONS
UNDERGROUND STORAGE AND RECOVERY**

19.25.8.1 ISSUING AGENCY: Office of the State Engineer
[19.25.8.1 NMAC - N, 01-31-2001]

19.25.8.2 SCOPE: These regulations govern the application process, the hydrologic, technical and financial capability report requirements, and the permit terms and conditions for projects authorized under the Ground Water Storage and Recovery Act (the “Act”), NMSA 1978, 72-5A-1 through 72-5A-17 (1999 Supp.). These regulations shall not be construed to limit or otherwise alter the jurisdiction, power, or authority of the state engineer.
[19.25.8.2 NMAC - N, 01-31-2001]

19.25.8.3 STATUTORY AUTHORITY: NMSA 1978, 72-5A-6(D) (1999)
[19.25.8.3 NMAC - N, 01-31-2001]

19.25.8.4 DURATION: Permanent
[19.25.8.4 NMAC - N, 01-31-2001]

19.25.8.5 EFFECTIVE DATE: January 31, 2001.
[19.25.8.5 NMAC - N, 01-31-2001]

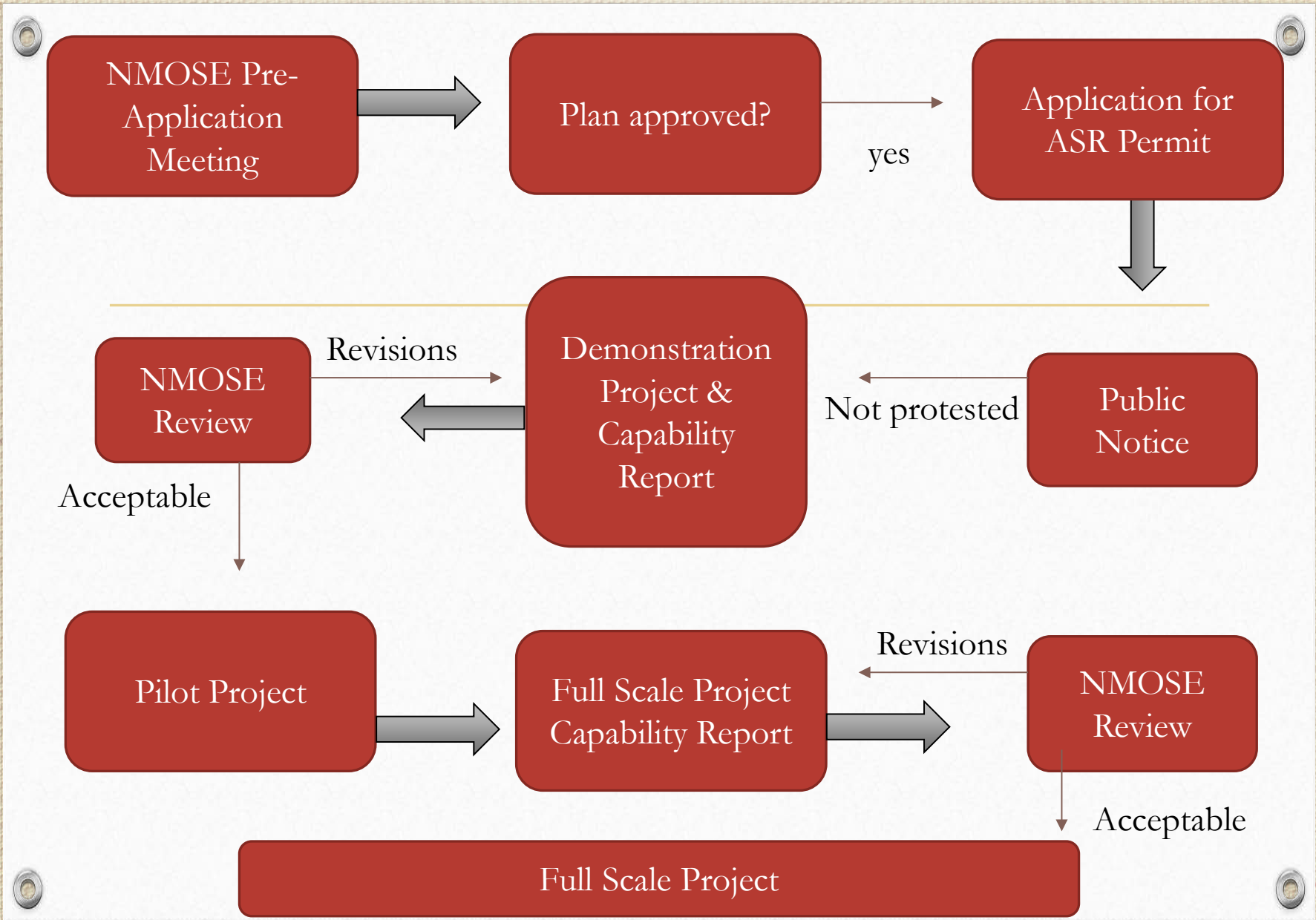
19.25.8.6 OBJECTIVE: The objective of these regulations is to govern the proceedings before the state engineer to ensure the expeditious and orderly handling of applications and administration matters related to the Act.
[19.25.8.6 NMAC - N, 01-31-2001]

AUTHORIZED APPLICANTS

- Governmental entities
 - Indian Nations, Tribes, or Pueblos
 - State Political Subdivisions
 - Municipalities
 - Counties
 - Acequias
 - Irrigation or Conservancy Districts

Regulations for ASR - Burden of Proof

- Has the technical and financial capability to construct and operate the project
- Is hydrologically feasible
- Will not impair existing water rights or the state's interstate obligations
- Will not be contrary to the conservation of water within the state
- Will not be detrimental to the public welfare of the state
- Has a valid water right for the recharge water quantified



2008 – Albuquerque

Bear Canyon Recharge Demonstration Project



ASR CONCEPT WITH COMMUNITY BENEFIT

DRAFT

Proposed aquifer storage and recovery feature at
Loma Linda Community Center

Owner: City of Albuquerque
 Lot Size: 14.5 acres
 Elevation change: 35', (5175-5210, ft amsl)
 Soil: BCC, MWA
 Soil permeability: 0.6 - 20.0 in/hr
 Basin area: 0.5 acre total
 Channel length: 1,070 ft
 Channel wetted: 3'
 Channel area: 3,210 sqft

Borehole Specifications

Gravel-filled boreholes

Quantity: 10
 Diameter: 36"
 Depth: 40'
 Est. Capacity: 80 - 150 gpm each

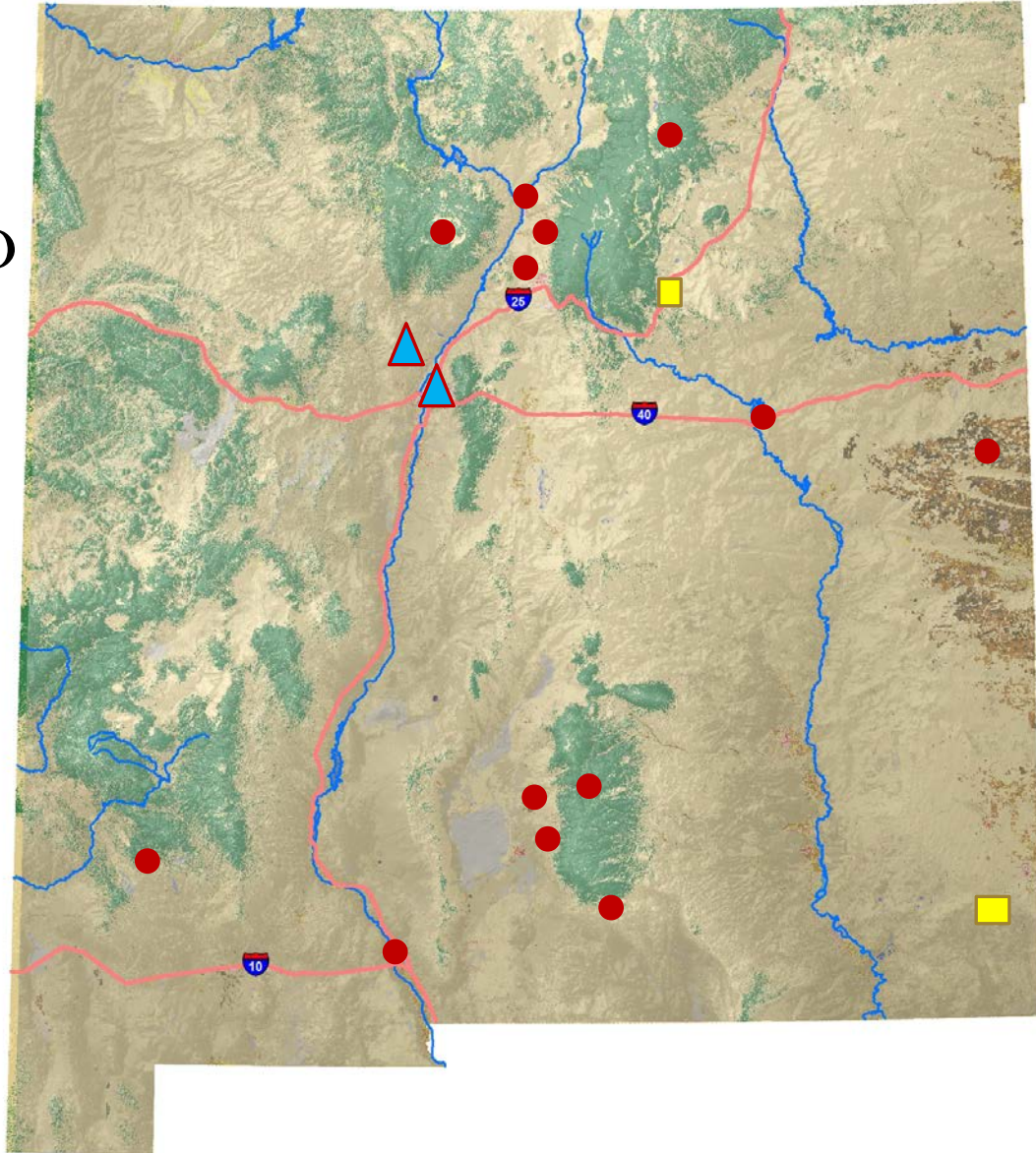
Depth to water:

Nearest Supply Well:

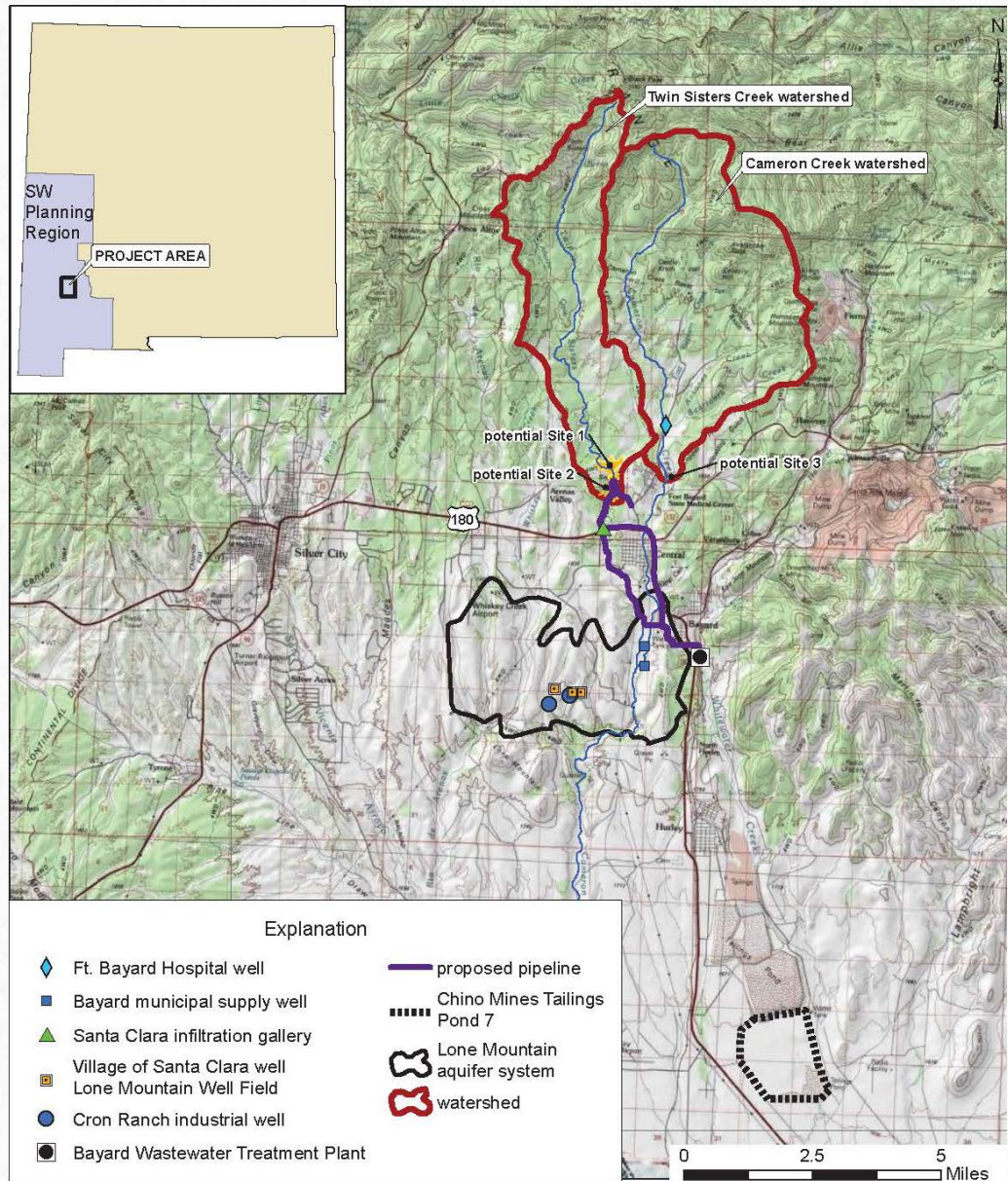


ASR in New Mexico

- ▲ USR permit
- USR pending
- ASR Water Management Strategy



Example ASR Water Management Strategy Assessment for the Tri-Cities area



BENEFITS TO NEW MEXICO

- A needed strategy for the water management toolbox that allows for conjunctive use management of surface water, groundwater, and reclaimed water sources
- Can provide long-term storage (drought reserve)
- Best suited for Municipalities

CHALLENGES

- “No water to do it with, otherwise a great conservation measure” Dr. John Shomaker
- Not cost effective for smaller communities
- Limited to Governmental Entities (excludes industry)
- Source water must meet Drinking Water Standards even if receiving aquifer does not meet the same standards
- Design and build system before obtaining permit